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Research paper

Apathy in early and late-life depression

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ABSTRACT

Background: Late-life depression is thought to differ in clinical presentation from early-life depression. Particularly, late-life depression is considered to be more characterized by apathy than is early-life depression. Lacking convincing evidence, this study examines the presence and associated socio-demographic/clinical characteristics of apathy in older compared to younger depressed persons.

Methods: This cross-sectional study used data from two naturalistic cohort studies, i.e. the Netherlands Study of Depression in Older Persons (NESDO) and the Netherlands Study of Depression and Anxiety (NESDA). These studies included 605 persons (aged 18–93 years) with a major depressive disorder, divided into 217 early-life (< 60 years) and 388 late-life (≥ 60 years) depressed persons. Apathy was considered present if a score of ≥14 on the Apathy Scale.

Results: Apathy was strongly associated with age: it was more frequently present in persons with late-life depression (74.5%) than in those with early-life depression (53.5%). Independent of age, the following characteristics were associated with the presence of apathy: male gender, low education, use of benzodiazepines, chronic diseases, and more severe depression. Of all potential risk factors, only former and current smoking was associated with the presence of apathy in older depressed persons but not in younger depressed persons (p-value for age interaction = 0.01).

Limitations: No causal relationships can be drawn due to the cross-sectional design of the study.

Conclusions: In depressed individuals, clinically relevant apathy was more frequently present in older compared to younger persons. Both age groups showed largely the same associated risk factors. Apathy was independently associated with older age, male gender and more severe depression.

1. Introduction

Depression is one of the most prevalent psychiatric disorders, affecting 5–8% of the population worldwide (Shahpesandy, 2005). It is often stated that depressive symptoms differ between younger and older depressed persons. For example, studies have demonstrated that late-life compared to early-life depressed persons show increased psychomotor retardation, decreased activity (Brodaty et al., 1997, 1991; Shahpesandy, 2005) and show less mood symptoms (i.e. feelings of guilt) (Hegeman et al., 2012; Lyness et al., 1995; Shahpesandy, 2005; Yates et al., 2004), all of which resemble symptoms of apathy. Therefore, apathy may be considered to be a characteristic feature of especially late-life depression (Shahpesandy, 2005). However, apathy (as a clinically relevant syndrome) can be diagnosed when a cluster of clinical features is present (consisting of a loss of motivation, interest and concern) resulting in decreased goal-directed behavior, emotional responsivity and cognitive activity.

Distinguishing apathy (as a syndrome) from depression can be a major challenge due to an overlap in symptoms, e.g. loss of interest, which is also found in anhedonia. Although both apathy and anhedonia indicate lack/decrease of interest, the latter presents a state of decreased experienced pleasure in activities, whilst apathy is characterized by a lack of primary motivation and affective dullness (Kaji and Hirata, 2011; Kirsch-Darrow et al., 2011).

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Studies in different populations show that the following risk factors are associated with apathy as a clinically relevant syndrome in old age: vascular disease, excessive use of alcohol, use of benzodiazepines, smoking and the presence of chronic diseases (Adams, 2001; Clarke et al., 2010; Lyvers et al., 2013, 2014; Maas et al., 2009; Moselhy et al., 2001; Onyike et al., 2007; Semprini et al., 2012; van der Mast et al., 2008; van Duijn et al., 2010; Winhusen et al., 2013). The few studies on clinically relevant apathy in depressed persons have focused mainly on older populations. In one cross-sectional study in depressed older persons: i) clinically relevant apathy was associated with severity of depression; whereas, longitudinally: ii) impaired cognitive function at baseline predicted incident apathy, and iii) more severe apathy at baseline predicted persistence of apathy and depression, whereas iv) remitted apathy was associated with less use of benzodiazepines (Groeneweg-Koolhoven et al., 2016). In addition, no association was found between apathy and the use of antidepressants or presence of cardiovascular diseases (Groeneweg-Koolhoven et al., 2016). Further, apathy appeared to be a predictor of poor response to antidepressant treatment (Levkovitz et al., 2011; Wongpakaran et al., 2007), chronicity of depression (Groeneweg-Koolhoven et al., 2016; Lavretsky et al., 1999), a poor prognosis, and increased overall mortality rates (Lavretsky et al., 2010; Yasuda et al., 2002). Improved treatment of clinically relevant apathy within a depressed group would ameliorate the prognosis. Therefore, it is of clinical relevance to have better understanding of the position of clinically relevant apathy in depressed persons (Brodaty et al., 1997, 1991; Shahpesandy, 2005).

Systematic studies measuring the same apathy concept in late-life and early-life depression are lacking. Consequently, it is unknown whether apathy as a distinct and clinically relevant syndrome is indeed much less present in depressed younger persons than in depressed older persons; and, if so, whether apathy has similar associating socio-demographic and clinical correlates in older depressed persons compared to younger depressed persons.

Therefore, the present study examines whether: the prevalence of apathy (as a distinct clinically relevant syndrome) differs between late-life and early-life depression and whether certain late-life comorbidities (e.g. chronic diseases, atherosclerosis, severity of depression, use of alcohol, use of benzodiazepines and smoking) partly explain such an age difference. In addition, we examined whether the found determinants of apathy are more important (moderating) in late-life than in early-life.

2. Methods

2.1. Study design

This cross-sectional study is part of the Netherlands Study of Depression in Older persons (NESDO) and the Netherlands Study of Depression and Anxiety (NESDA). Both are multi-site naturalistic, prospective cohort studies designed to examine the psychosocial, neurobiological and clinical determinants, course and consequences of depressive disorders. All participants were recruited from general practices, mental healthcare organizations, and university medical centers. Exclusion criteria were: a diagnosis of dementia or a Mini Mental State Examination score (MMSE) ≤ 18 (only NESDO), the presence of another primary psychiatric disorder (e.g. psychotic or bipolar disorder), and insufficient mastery of the Dutch language.

The design of these studies are largely similar in scope and are described in earlier reports (Comijs et al., 2011; Penninx et al., 2008). Apathy was measured in both waves of NESDO as well as in the 6 year follow-up of NESDA. The main differences between the two studies are the inclusion of both depression and anxiety disorders in the NESDA study, whereas the NESDO study included persons suffering from depression alone, and also included inpatients (n = 26).

For the current analysis we used i) baseline data of the NESDO participants (age range 60–93 years) but excluding their inpatients, and ii) the 6-year follow-up data from the NESDA study (age range 24–71 years). From these studies, we included only the 605 participants who, irrespective of age of onset of depression, had a current (6-month recency) diagnosis of major depressive disorder (217 early-life, 388 late-life) according to the DSM-IV criteria (American Psychiatric Association) as assessed with the Composite International Diagnostic Interview; CIDI; WHO version 2.1; life-time version (Wittchen et al., 1991) and who had completed Apathy Scale scores. Early-life (< 60 years) and late-life (≥ 60 years) depression was defined using a cut-off age of 60 years, which is mostly commonly used (Brodaty et al., 2005a, 1991; Gournellis et al., 2011).

Both study protocols were approved by the Ethical Review Boards of all the participating centers. Before enrollment all participants gave written informed consent.

2.2. Measures

2.2.1. Assessment of apathy

Apathy was assessed with the Apathy Scale, used as a self-report questionnaire that has demonstrated good psychometric properties (Pedersen et al., 2012; Starkstein et al., 1992). The Apathy Scale consists of 14 items with four possible answers ranging from 0 to 3 (maximum 42) points (Pedersen et al., 2012; Starkstein et al., 1992); higher scores indicate more severe apathy (Starkstein et al., 1992). In different clinical populations, a cut-off score of 14 showed a moderate sensitivity and a high specificity for the presence of clinically relevant apathy (Pedersen et al., 2012; Starkstein et al., 1993, 1992, 2001).

2.2.2. Assessment of presence and severity of depression

The presence of a depressive disorder in the 6 months before the measurement was assessed with the CIDI (WHO version 2.1; life-time version) (Wittchen et al., 1991).

The severity of depressive symptoms was assessed using the 30-item self-report Inventory of Depressive Symptomatology (IDS-SR) (Rush et al., 1996) with higher scores indicating more severe depression.

2.2.3. Assessment of other characteristics

For all participants, information was obtained on gender, age, and education. Education was divided into three levels: basic (0–8 years), intermediate (9–14 years), and high (> 15 years) (Prins et al., 2010).

For the assessment of chronic diseases, a self-rating questionnaire was used asking the participants whether they currently or previously had any of the following chronic diseases or disease events: cardiac disease, peripheral atherosclerosis, stroke, diabetes mellitus, lung disease, osteoarthritis or cancer, or any other disease (Comijs et al., 2011; Penninx et al., 2008). The accuracy of self-report of these diseases has shown to be adequate and independent of cognitive impairment compared to data obtained from general practitioners (Kriegsman et al., 1996).

The self-reported use of benzodiazepines (on a daily basis only), i.e. anxiolytics and hypnotics, was classified using the Anatomical Therapeutic Chemical Classification system (Norwegian, 2011). The number of alcoholic drinks a day was assessed with the Alcohol use Disorders Identification Test (AUDIT) (Babor et al., 1989).

2.2.3.1. Smoking status was defined as non-smoker, former smoker or current smoker. The ankle/brachial index (ABI) was used as an indicator of peripheral atherosclerosis. Doppler assessment (with an electronic Omron sphygmomanometer) of ankle and arm systolic blood pressure enabled to calculate the ABI (Newman et al., 1993).

2.3. Statistical analysis

Data are presented as numbers with percentages, medians with interquartile ranges (IQR), or means with standard deviations (SD), where appropriate. Using univariate analyses, persons with late-life